Formula Sheet for the Class II
Revised 05/02

F025
Detention time, hrs = $\frac{\text{(Tank volume, cf) (7.48) (24, hrs)}}{\text{Flow, gpd}}$

F026
Hydraulic loading, gpd/sf = $\frac{\text{Flow rate, gpd}}{\text{Surface area, sf}}$

F027
Chlorine dose, mg/l = $\frac{\text{Chlorine, lbs}}{\text{(Flow rate, mgd) x (8.34)}}$

F028
Chlorine demand, mg/L = Chlorine dosage, mg/L - residual chlorine, mg/L

F029
BOD load, lbs BOD/month =
(BOD conc, mg/l) x (average flow rate, mgd) x (8.34) x (30 days/month)

F030
Pump capacity, gpm = $\frac{\text{(Width) x (length) x (draw-down, cf x 7.48)}}{\text{Time of draw-down, in minutes}}$

F031
D.O. saturation, % =
$\frac{\text{(D.O. of receiving water, mg/L) x (100\%)}}{\text{D.O. at 100\% saturation, mg/L}}$

F032
Desired suspended solids, lbs = (Sludge age, days) x (primary effluent solids, lb/day)

F033
Volume per stroke, gal/stroke = $\frac{(0.785) \times (\text{diameter, inch})^2}{(12)^2} \times \frac{\text{(stroke, inch) x (7.48)}}{12}$

F034
Total dry solids, lbs = $\frac{\text{(Raw sludge, gal) (total solids, \%) (8.34)}}{100\%}$

F035
MLSS, lbs = (Aeration volume, MG) x (MLSS conc, mg/L) x (8.34)

F036
Return sludge rate, mgd = (Total flow, MGD) (Return sludge flow ratio)

F037
Digestion time, days = $\frac{\text{Digester volume, gal}}{\text{Flow, gpd}}$

F038

$$\text{Phosphorus (P) removal, \%} = \frac{(\text{Influent P, mg/L} - \text{effluent P, mg/L})\ (100\%)}{\text{Influent P, mg/L}}$$

F039

$$\text{Sludge applied, gal} = \frac{(\text{Area, sf}) \times (\text{depth of application, in}) \times (7.48)}{12 \text{ in / ft}}$$

F012

Solids loading, lbs/day =
(Flow, MGD) x (influent TSS, mg/L) x 8.34

F016

$$\text{Average flow rate, MGD} = \frac{(\text{Final flow, MG}) - (\text{initial flow, MG})}{\text{Time elapsed, days}}$$

F018

$$\text{TSS removal efficiency, \%} = \frac{\text{Influent TSS - effluent TSS}}{\text{Influent TSS}} \times 100\%$$

F022

Chlorine feed rate, lbs/day =
(Flow, MGD) x (dosage, mg/L) x 8.34

F028

Chlorine demand, mg/L =
Chlorine dosage, mg/L - residual chlorine, mg/L